

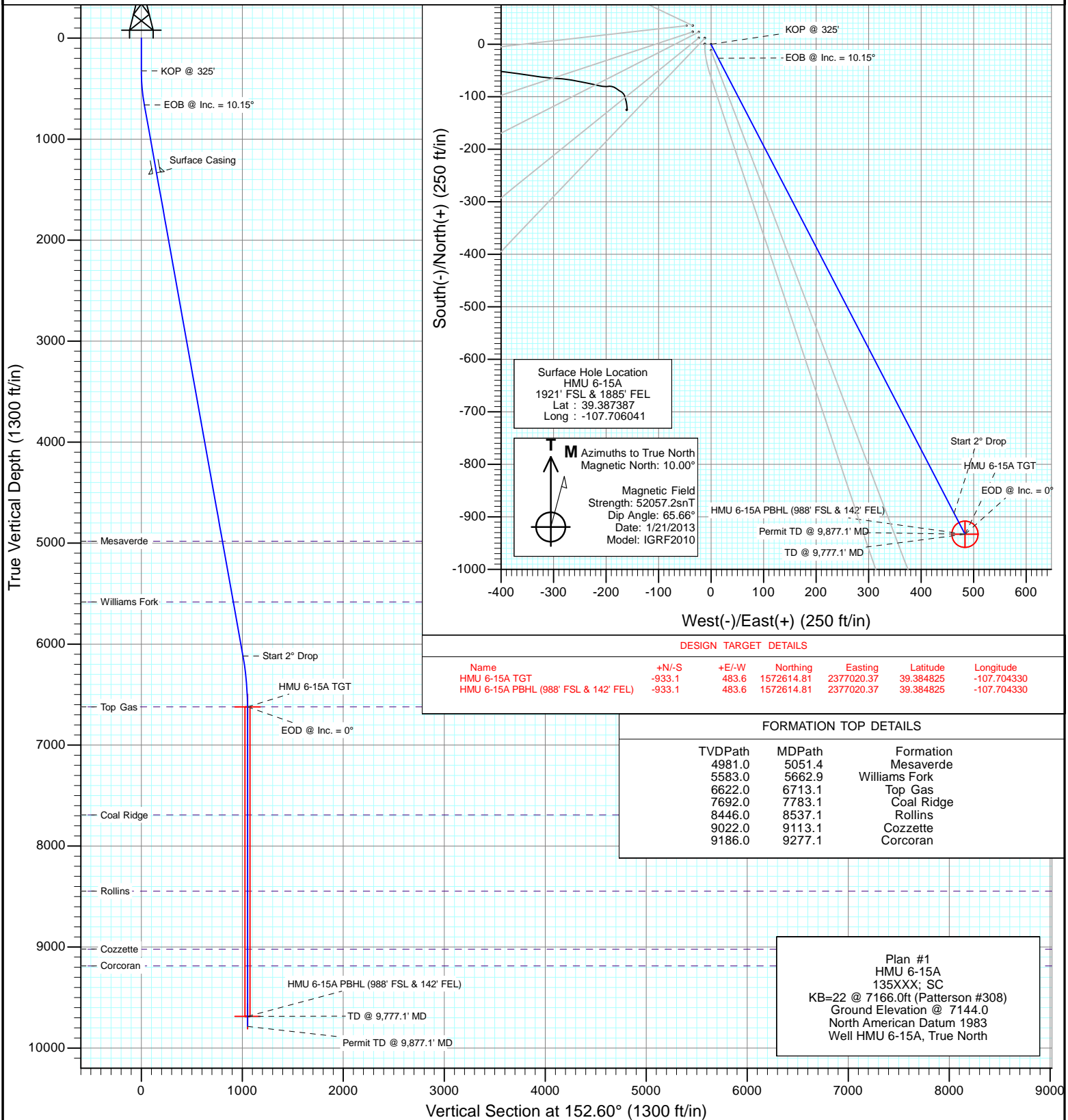


Project: Mamm Creek
Site: J6SEB Pad
Well: HMU 6-15A
Wellbore: OH
Design: Plan #1



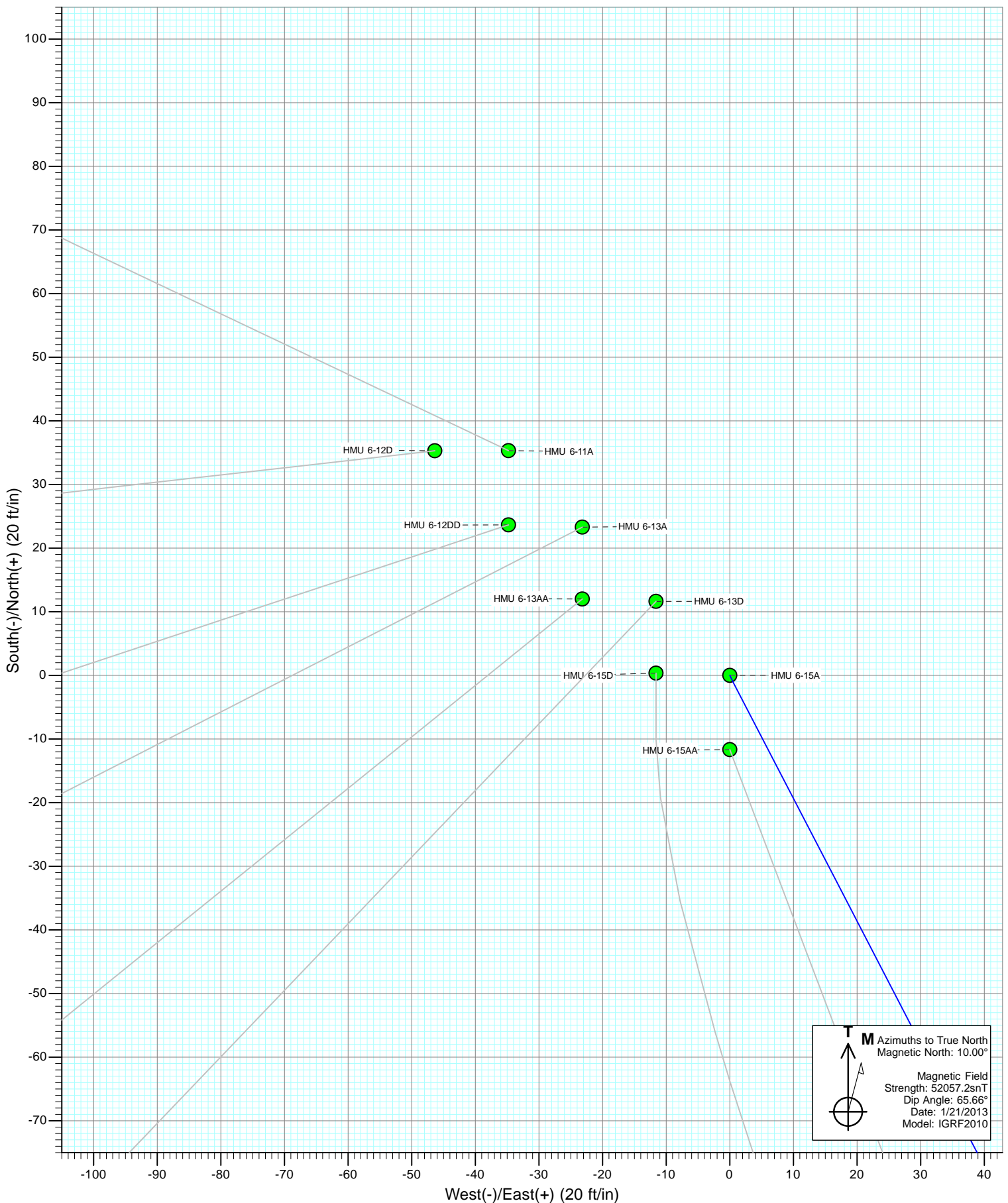
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	325.0	0.00	0.00	325.0	0.0	0.0	0.00	0.00	0.0	
3	663.2	10.15	152.60	661.4	-26.5	13.7	3.00	152.60	29.9	
4	6205.8	10.15	152.60	6117.4	-893.4	463.0	0.00	0.00	1006.2	
5	6713.1	0.00	0.00	6622.0	-933.1	483.6	2.00	180.00	1051.0	HMU 6-15A TGT
6	9777.1	0.00	0.00	9686.0	-933.1	483.6	0.00	0.00	1051.0	HMU 6-15A PBHL (988' FSL & 142' FEL)
7	9877.1	0.00	0.00	9786.0	-933.1	483.6	0.00	0.00	1051.0	



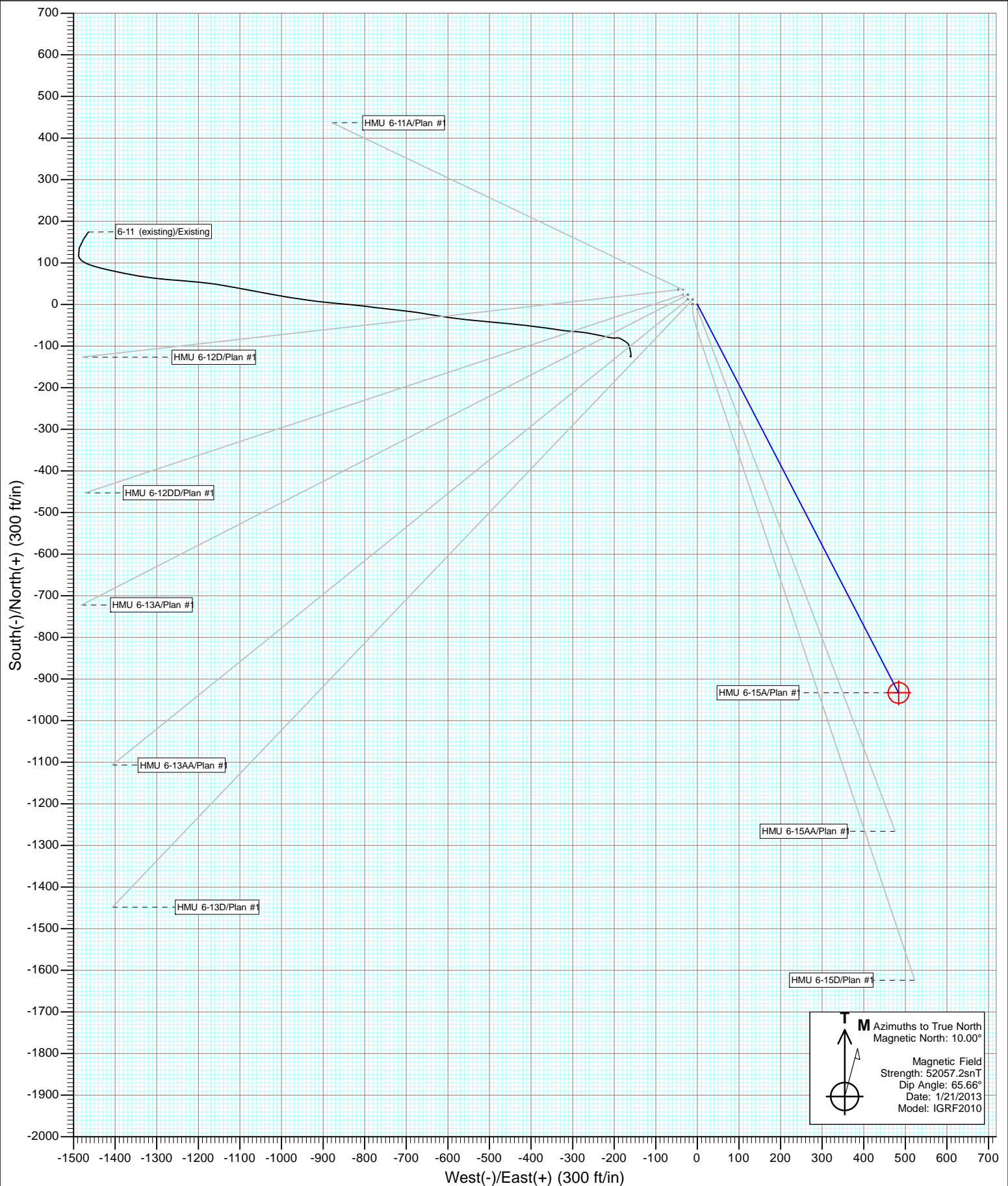


Project: Mamm Creek
Site: J6SEB Pad
Well: HMU 6-15A
Wellbore: OH
Design: Plan #1



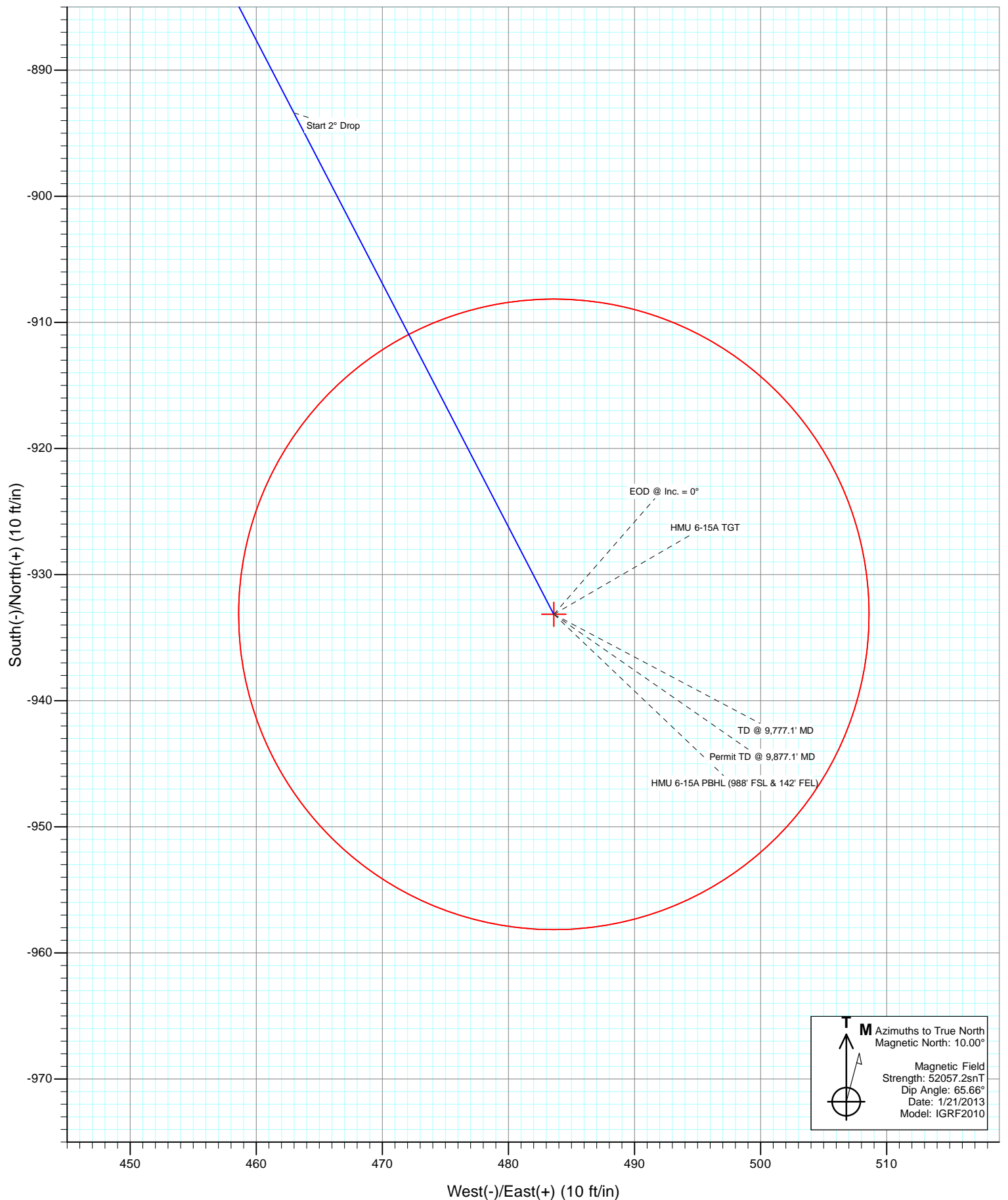


Project: Mamm Creek
Site: J6SEB Pad
Well: HMU 6-15A
Wellbore: OH
Design: Plan #1





Project: Mamm Creek
Site: J6SEB Pad
Well: HMU 6-15A
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well HMU 6-15A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Project:	Mamm Creek	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site:	J6SEB Pad	North Reference:	True
Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Project	Mamm Creek		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		J6SEB Pad			
Site Position:		Northing:	1,573,595.87 ft	Latitude:	39.387484
From:	Lat/Long	Easting:	2,376,514.08 ft	Longitude:	-107.706205
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.39 °

Well	HMU 6-15A					
Well Position	+N/-S	0.0 ft	Northing:	1,573,559.42 ft	Latitude:	39.387387
	+E/-W	0.0 ft	Easting:	2,376,559.56 ft	Longitude:	-107.706041
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,144.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	1/21/2013	10.00	65.66	52,057

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	152.60

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
325.0	0.00	0.00	325.0	0.0	0.0	0.00	0.00	0.00	0.00	
663.2	10.15	152.60	661.4	-26.5	13.7	3.00	3.00	0.00	152.60	
6,205.8	10.15	152.60	6,117.4	-893.4	463.0	0.00	0.00	0.00	0.00	
6,713.1	0.00	0.00	6,622.0	-933.1	483.6	2.00	-2.00	0.00	180.00	HMU 6-15A TGT
9,777.1	0.00	0.00	9,686.0	-933.1	483.6	0.00	0.00	0.00	0.00	HMU 6-15A PBHL (98
9,877.1	0.00	0.00	9,786.0	-933.1	483.6	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

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Project:	Mamm Creek	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site:	J6SEB Pad	North Reference:	True
Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
325.0	0.00	0.00	325.0	0.0	0.0	0.0	0.00	0.00	KOP @ 325'
400.0	2.25	152.60	400.0	-1.3	0.7	1.5	3.00	3.00	
500.0	5.25	152.60	499.8	-7.1	3.7	8.0	3.00	3.00	
600.0	8.25	152.60	599.1	-17.5	9.1	19.8	3.00	3.00	
663.2	10.15	152.60	661.4	-26.5	13.7	29.9	3.00	3.00	EOB @ Inc. = 10.15°
700.0	10.15	152.60	697.7	-32.3	16.7	36.3	0.00	0.00	
800.0	10.15	152.60	796.1	-47.9	24.8	54.0	0.00	0.00	
900.0	10.15	152.60	894.5	-63.6	32.9	71.6	0.00	0.00	
1,000.0	10.15	152.60	993.0	-79.2	41.0	89.2	0.00	0.00	
1,100.0	10.15	152.60	1,091.4	-94.8	49.1	106.8	0.00	0.00	
1,200.0	10.15	152.60	1,189.8	-110.5	57.3	124.4	0.00	0.00	
1,300.0	10.15	152.60	1,288.3	-126.1	65.4	142.0	0.00	0.00	
1,347.5	10.15	152.60	1,335.0	-133.5	69.2	150.4	0.00	0.00	Surface Casing
1,400.0	10.15	152.60	1,386.7	-141.8	73.5	159.7	0.00	0.00	
1,500.0	10.15	152.60	1,485.1	-157.4	81.6	177.3	0.00	0.00	
1,600.0	10.15	152.60	1,583.6	-173.0	89.7	194.9	0.00	0.00	
1,700.0	10.15	152.60	1,682.0	-188.7	97.8	212.5	0.00	0.00	
1,800.0	10.15	152.60	1,780.5	-204.3	105.9	230.1	0.00	0.00	
1,900.0	10.15	152.60	1,878.9	-220.0	114.0	247.7	0.00	0.00	
2,000.0	10.15	152.60	1,977.3	-235.6	122.1	265.4	0.00	0.00	
2,100.0	10.15	152.60	2,075.8	-251.2	130.2	283.0	0.00	0.00	
2,200.0	10.15	152.60	2,174.2	-266.9	138.3	300.6	0.00	0.00	
2,300.0	10.15	152.60	2,272.6	-282.5	146.4	318.2	0.00	0.00	
2,400.0	10.15	152.60	2,371.1	-298.2	154.5	335.8	0.00	0.00	
2,500.0	10.15	152.60	2,469.5	-313.8	162.6	353.4	0.00	0.00	
2,600.0	10.15	152.60	2,567.9	-329.4	170.7	371.0	0.00	0.00	
2,700.0	10.15	152.60	2,666.4	-345.1	178.8	388.7	0.00	0.00	
2,800.0	10.15	152.60	2,764.8	-360.7	186.9	406.3	0.00	0.00	
2,900.0	10.15	152.60	2,863.3	-376.4	195.0	423.9	0.00	0.00	
3,000.0	10.15	152.60	2,961.7	-392.0	203.2	441.5	0.00	0.00	
3,100.0	10.15	152.60	3,060.1	-407.6	211.3	459.1	0.00	0.00	
3,200.0	10.15	152.60	3,158.6	-423.3	219.4	476.7	0.00	0.00	
3,300.0	10.15	152.60	3,257.0	-438.9	227.5	494.4	0.00	0.00	
3,400.0	10.15	152.60	3,355.4	-454.5	235.6	512.0	0.00	0.00	
3,500.0	10.15	152.60	3,453.9	-470.2	243.7	529.6	0.00	0.00	
3,600.0	10.15	152.60	3,552.3	-485.8	251.8	547.2	0.00	0.00	
3,700.0	10.15	152.60	3,650.7	-501.5	259.9	564.8	0.00	0.00	
3,800.0	10.15	152.60	3,749.2	-517.1	268.0	582.4	0.00	0.00	
3,900.0	10.15	152.60	3,847.6	-532.7	276.1	600.0	0.00	0.00	
4,000.0	10.15	152.60	3,946.1	-548.4	284.2	617.7	0.00	0.00	
4,100.0	10.15	152.60	4,044.5	-564.0	292.3	635.3	0.00	0.00	
4,200.0	10.15	152.60	4,142.9	-579.7	300.4	652.9	0.00	0.00	
4,300.0	10.15	152.60	4,241.4	-595.3	308.5	670.5	0.00	0.00	
4,400.0	10.15	152.60	4,339.8	-610.9	316.6	688.1	0.00	0.00	
4,500.0	10.15	152.60	4,438.2	-626.6	324.7	705.7	0.00	0.00	
4,600.0	10.15	152.60	4,536.7	-642.2	332.8	723.4	0.00	0.00	
4,700.0	10.15	152.60	4,635.1	-657.9	340.9	741.0	0.00	0.00	
4,800.0	10.15	152.60	4,733.5	-673.5	349.0	758.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well HMU 6-15A
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Project:	Mamm Creek	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site:	J6SEB Pad	North Reference:	True
Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,900.0	10.15	152.60	4,832.0	-689.1	357.2	776.2	0.00	0.00	
5,000.0	10.15	152.60	4,930.4	-704.8	365.3	793.8	0.00	0.00	
5,051.4	10.15	152.60	4,981.0	-712.8	369.4	802.9	0.00	0.00	Mesaverde
5,100.0	10.15	152.60	5,028.9	-720.4	373.4	811.4	0.00	0.00	
5,200.0	10.15	152.60	5,127.3	-736.1	381.5	829.0	0.00	0.00	
5,300.0	10.15	152.60	5,225.7	-751.7	389.6	846.7	0.00	0.00	
5,400.0	10.15	152.60	5,324.2	-767.3	397.7	864.3	0.00	0.00	
5,500.0	10.15	152.60	5,422.6	-783.0	405.8	881.9	0.00	0.00	
5,600.0	10.15	152.60	5,521.0	-798.6	413.9	899.5	0.00	0.00	
5,662.9	10.15	152.60	5,583.0	-808.5	419.0	910.6	0.00	0.00	Williams Fork
5,700.0	10.15	152.60	5,619.5	-814.3	422.0	917.1	0.00	0.00	
5,800.0	10.15	152.60	5,717.9	-829.9	430.1	934.7	0.00	0.00	
5,900.0	10.15	152.60	5,816.3	-845.5	438.2	952.4	0.00	0.00	
6,000.0	10.15	152.60	5,914.8	-861.2	446.3	970.0	0.00	0.00	
6,100.0	10.15	152.60	6,013.2	-876.8	454.4	987.6	0.00	0.00	
6,205.8	10.15	152.60	6,117.4	-893.4	463.0	1,006.2	0.00	0.00	Start 2° Drop
6,300.0	8.26	152.60	6,210.3	-906.8	469.9	1,021.3	2.00	-2.00	
6,400.0	6.26	152.60	6,309.5	-918.0	475.7	1,033.9	2.00	-2.00	
6,500.0	4.26	152.60	6,409.1	-926.1	480.0	1,043.1	2.00	-2.00	
6,600.0	2.26	152.60	6,508.9	-931.2	482.6	1,048.8	2.00	-2.00	
6,700.0	0.26	152.60	6,608.9	-933.1	483.6	1,051.0	2.00	-2.00	
6,713.1	0.00	0.00	6,622.0	-933.1	483.6	1,051.0	2.00	-2.00	EOD @ Inc. = 0° - Top Gas
6,800.0	0.00	0.00	6,708.9	-933.1	483.6	1,051.0	0.00	0.00	
6,900.0	0.00	0.00	6,808.9	-933.1	483.6	1,051.0	0.00	0.00	
7,000.0	0.00	0.00	6,908.9	-933.1	483.6	1,051.0	0.00	0.00	
7,100.0	0.00	0.00	7,008.9	-933.1	483.6	1,051.0	0.00	0.00	
7,200.0	0.00	0.00	7,108.9	-933.1	483.6	1,051.0	0.00	0.00	
7,300.0	0.00	0.00	7,208.9	-933.1	483.6	1,051.0	0.00	0.00	
7,400.0	0.00	0.00	7,308.9	-933.1	483.6	1,051.0	0.00	0.00	
7,500.0	0.00	0.00	7,408.9	-933.1	483.6	1,051.0	0.00	0.00	
7,600.0	0.00	0.00	7,508.9	-933.1	483.6	1,051.0	0.00	0.00	
7,700.0	0.00	0.00	7,608.9	-933.1	483.6	1,051.0	0.00	0.00	
7,783.1	0.00	0.00	7,692.0	-933.1	483.6	1,051.0	0.00	0.00	Coal Ridge
7,800.0	0.00	0.00	7,708.9	-933.1	483.6	1,051.0	0.00	0.00	
7,900.0	0.00	0.00	7,808.9	-933.1	483.6	1,051.0	0.00	0.00	
8,000.0	0.00	0.00	7,908.9	-933.1	483.6	1,051.0	0.00	0.00	
8,100.0	0.00	0.00	8,008.9	-933.1	483.6	1,051.0	0.00	0.00	
8,200.0	0.00	0.00	8,108.9	-933.1	483.6	1,051.0	0.00	0.00	
8,300.0	0.00	0.00	8,208.9	-933.1	483.6	1,051.0	0.00	0.00	
8,400.0	0.00	0.00	8,308.9	-933.1	483.6	1,051.0	0.00	0.00	
8,500.0	0.00	0.00	8,408.9	-933.1	483.6	1,051.0	0.00	0.00	
8,537.1	0.00	0.00	8,446.0	-933.1	483.6	1,051.0	0.00	0.00	Rollins
8,600.0	0.00	0.00	8,508.9	-933.1	483.6	1,051.0	0.00	0.00	
8,700.0	0.00	0.00	8,608.9	-933.1	483.6	1,051.0	0.00	0.00	
8,800.0	0.00	0.00	8,708.9	-933.1	483.6	1,051.0	0.00	0.00	
8,900.0	0.00	0.00	8,808.9	-933.1	483.6	1,051.0	0.00	0.00	
9,000.0	0.00	0.00	8,908.9	-933.1	483.6	1,051.0	0.00	0.00	
9,100.0	0.00	0.00	9,008.9	-933.1	483.6	1,051.0	0.00	0.00	
9,113.1	0.00	0.00	9,022.0	-933.1	483.6	1,051.0	0.00	0.00	Cozzette
9,200.0	0.00	0.00	9,108.9	-933.1	483.6	1,051.0	0.00	0.00	
9,277.1	0.00	0.00	9,186.0	-933.1	483.6	1,051.0	0.00	0.00	Corcoran
9,300.0	0.00	0.00	9,208.9	-933.1	483.6	1,051.0	0.00	0.00	

Cathedral Energy Services

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Project:	Mamm Creek	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site:	J6SEB Pad	North Reference:	True
Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,400.0	0.00	0.00	9,308.9	-933.1	483.6	1,051.0	0.00	0.00	
9,500.0	0.00	0.00	9,408.9	-933.1	483.6	1,051.0	0.00	0.00	
9,600.0	0.00	0.00	9,508.9	-933.1	483.6	1,051.0	0.00	0.00	
9,700.0	0.00	0.00	9,608.9	-933.1	483.6	1,051.0	0.00	0.00	
9,777.1	0.00	0.00	9,686.0	-933.1	483.6	1,051.0	0.00	0.00	TD @ 9,777.1' MD
9,800.0	0.00	0.00	9,708.9	-933.1	483.6	1,051.0	0.00	0.00	
9,877.1	0.00	0.00	9,786.0	-933.1	483.6	1,051.0	0.00	0.00	Permit TD @ 9,877.1' MD

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
HMU 6-15A PBHL (988' - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,686.0	-933.1	483.6	1,572,614.81	2,377,020.37	39.384825	-107.704330
HMU 6-15A TGT - plan hits target center - Point	0.00	0.00	6,622.0	-933.1	483.6	1,572,614.81	2,377,020.37	39.384825	-107.704330

Casing Points				
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,347.5	1,335.0	Surface Casing		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
5,051.4	4,981.0	Mesaverde				
5,662.9	5,583.0	Williams Fork				
6,713.1	6,622.0	Top Gas				
7,783.1	7,692.0	Coal Ridge				
8,537.1	8,446.0	Rollins				
9,113.1	9,022.0	Cozzette				
9,277.1	9,186.0	Corcoran				

Cathedral Energy Services

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Project:	Mamm Creek	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site:	J6SEB Pad	North Reference:	True
Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
325.0	325.0	0.0	0.0	KOP @ 325'
663.2	661.4	-26.5	13.7	EOB @ Inc. = 10.15°
6,205.8	6,117.4	-893.4	463.0	Start 2° Drop
6,713.1	6,622.0	-933.1	483.6	EOD @ Inc. = 0°
9,777.1	9,686.0	-933.1	483.6	TD @ 9,777.1' MD
9,877.1	9,786.0	-933.1	483.6	Permit TD @ 9,877.1' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek

J6SEB Pad

HMU 6-15A

OH

Plan #1

Anticollision Report

21 January, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	1/21/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	9,877.1	Plan #1 (OH)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
J6SE						
6-11 (existing) - Existing - Existing	634.7	609.1	192.0	189.6	81.020	CC, ES
6-11 (existing) - Existing - Existing	1,700.0	1,644.1	315.8	309.0	46.297	SF
J6SEB Pad						
HMU 6-11A - OH - Plan #1	233.4	233.4	49.6	48.8	67.171	CC, ES
HMU 6-11A - OH - Plan #1	400.0	396.0	56.4	55.1	42.906	SF
HMU 6-12D - OH - Plan #1	200.0	200.0	58.3	57.6	93.783	CC, ES
HMU 6-12D - OH - Plan #1	500.0	490.6	82.9	81.2	48.510	SF
HMU 6-12DD - OH - Plan #1	200.0	200.0	42.1	41.4	67.689	CC, ES
HMU 6-12DD - OH - Plan #1	500.0	494.2	62.0	60.3	36.082	SF
HMU 6-13A - OH - Plan #1	255.7	255.7	32.9	32.1	40.298	CC
HMU 6-13A - OH - Plan #1	300.0	299.9	32.9	31.9	33.929	ES
HMU 6-13A - OH - Plan #1	500.0	497.6	45.6	43.9	26.653	SF
HMU 6-13AA - OH - Plan #1	234.9	234.9	26.1	25.4	35.129	CC, ES
HMU 6-13AA - OH - Plan #1	400.0	398.9	30.0	28.7	22.527	SF
HMU 6-13D - OH - Plan #1	300.0	300.0	16.4	15.5	16.934	CC, ES
HMU 6-13D - OH - Plan #1	400.0	399.9	17.9	16.6	13.508	SF
HMU 6-15AA - OH - Plan #1	200.0	200.0	11.7	11.0	18.766	CC, ES
HMU 6-15AA - OH - Plan #1	8,800.0	8,846.4	333.1	297.8	9.420	SF
HMU 6-15D - OH - Plan #1	260.4	260.4	11.6	10.8	13.907	CC
HMU 6-15D - OH - Plan #1	300.0	300.0	11.6	10.7	11.968	ES
HMU 6-15D - OH - Plan #1	400.0	399.6	13.8	12.5	10.249	SF

Cathedral Energy Services

Anticollision Report

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Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SE - 6-11 (existing) - Existing - Existing													Offset Site Error:	0.0 ft
Survey Program: 160-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-127.89	-124.8	-160.3	204.9					
100.0	100.0	74.6	74.6	0.1	0.1	-127.87	-124.6	-160.2	203.0	202.7	0.26	794.654		
200.0	200.0	176.2	176.2	0.3	0.3	-127.79	-123.7	-159.6	202.0	201.4	0.60	337.307		
300.0	300.0	277.6	277.6	0.5	0.5	-127.20	-121.0	-159.5	200.2	199.2	0.97	205.420		
400.0	400.0	378.7	378.6	0.7	0.7	82.03	-115.8	-160.3	197.6	196.3	1.34	147.419		
500.0	499.8	477.8	477.5	0.9	0.9	85.76	-109.5	-161.6	194.5	192.8	1.74	111.580		
600.0	599.1	576.0	575.4	1.1	1.1	91.07	-103.1	-163.0	192.2	190.0	2.20	87.440		
634.7	633.4	609.1	608.4	1.2	1.2	93.13	-101.1	-163.5	192.0	189.6	2.37	81.020 CC, ES		
700.0	697.7	671.0	670.2	1.4	1.3	97.34	-97.9	-164.6	192.9	190.2	2.69	71.711		
800.0	796.1	766.3	765.4	1.7	1.5	103.52	-93.9	-167.2	197.5	194.3	3.18	62.104		
900.0	894.5	863.3	862.3	2.1	1.6	109.16	-91.0	-170.3	205.1	201.5	3.65	56.207		
1,000.0	993.0	962.1	961.1	2.4	1.8	114.12	-89.3	-172.9	214.2	210.1	4.10	52.258		
1,100.0	1,091.4	1,059.3	1,058.2	2.7	2.0	118.55	-87.8	-175.5	224.9	220.4	4.53	49.637		
1,200.0	1,189.8	1,155.5	1,154.3	3.1	2.2	122.65	-85.7	-178.5	237.3	232.3	4.95	47.977		
1,300.0	1,288.3	1,250.3	1,249.0	3.4	2.3	126.43	-83.0	-182.4	251.8	246.4	5.34	47.170		
1,400.0	1,386.7	1,348.5	1,347.1	3.8	2.5	129.70	-80.9	-187.3	268.0	262.3	5.72	46.885		
1,500.0	1,485.1	1,449.4	1,447.9	4.1	2.7	132.51	-79.9	-191.4	283.9	277.8	6.09	46.630		
1,600.0	1,583.6	1,548.7	1,547.1	4.5	2.9	134.77	-80.2	-195.0	299.6	293.2	6.46	46.398		
1,700.0	1,682.0	1,644.1	1,642.4	4.8	3.1	136.68	-80.6	-198.7	315.8	309.0	6.82	46.297 SF		
1,800.0	1,780.5	1,735.5	1,733.7	5.2	3.2	138.35	-80.5	-203.6	333.9	326.7	7.18	46.516		
1,900.0	1,878.9	1,825.4	1,823.3	5.5	3.4	139.84	-79.5	-210.0	354.3	346.8	7.53	47.053		
2,000.0	1,977.3	1,914.0	1,911.6	5.9	3.6	141.17	-77.7	-218.3	377.2	369.3	7.88	47.868		
2,100.0	2,075.8	2,002.0	1,999.0	6.2	3.8	142.29	-75.5	-228.3	402.4	394.2	8.23	48.894		
2,200.0	2,174.2	2,089.6	2,085.7	6.6	4.1	143.19	-73.0	-240.3	429.8	421.2	8.58	50.064		
2,300.0	2,272.6	2,176.8	2,171.8	7.0	4.3	143.89	-70.5	-254.0	459.1	450.2	8.94	51.327		
2,400.0	2,371.1	2,265.3	2,258.9	7.3	4.6	144.45	-67.7	-269.4	490.1	480.7	9.31	52.622		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-11A - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	0.0	0.0	0.0	0.0	-44.54	35.3	-34.8	49.6					
100.0	100.0	100.0	100.0	0.1	0.1	-44.54	35.3	-34.8	49.6	49.3	0.27	182.034		
200.0	200.0	200.0	200.0	0.3	0.3	-44.54	35.3	-34.8	49.6	48.9	0.62	79.768		
233.4	233.4	233.4	233.4	0.4	0.4	-44.54	35.3	-34.8	49.6	48.8	0.74	67.171 CC, ES		
300.0	300.0	298.8	298.8	0.5	0.5	-44.78	35.6	-35.3	50.2	49.2	0.97	51.790		
400.0	400.0	396.0	395.9	0.7	0.7	161.28	37.7	-39.8	56.4	55.1	1.31	42.906 SF		
500.0	499.8	491.7	491.1	0.9	0.9	160.27	41.9	-48.6	72.2	70.5	1.66	43.457		
600.0	599.1	586.9	585.2	1.1	1.2	159.80	47.8	-60.9	96.8	94.7	2.01	48.145		
700.0	697.7	682.4	679.7	1.4	1.4	160.20	53.9	-73.8	126.3	123.9	2.37	53.319		
800.0	796.1	777.6	773.9	1.7	1.7	160.70	60.0	-86.7	156.8	154.0	2.74	57.263		
900.0	894.5	872.9	868.0	2.1	2.0	161.04	66.1	-99.5	187.3	184.2	3.11	60.224		
1,000.0	993.0	968.1	962.2	2.4	2.3	161.29	72.3	-112.4	217.8	214.3	3.48	62.525		
1,100.0	1,091.4	1,063.3	1,056.3	2.7	2.6	161.47	78.4	-125.3	248.3	244.4	3.86	64.363		
1,200.0	1,189.8	1,158.6	1,150.5	3.1	2.9	161.61	84.5	-138.1	278.8	274.6	4.23	65.862		
1,300.0	1,288.3	1,253.8	1,244.7	3.4	3.2	161.73	90.6	-151.0	309.3	304.7	4.61	67.109		
1,400.0	1,386.7	1,349.0	1,338.8	3.8	3.5	161.82	96.7	-163.8	339.8	334.8	4.99	68.162		
1,500.0	1,485.1	1,444.3	1,433.0	4.1	3.8	161.90	102.8	-176.7	370.3	365.0	5.36	69.062		
1,600.0	1,583.6	1,539.5	1,527.1	4.5	4.1	161.97	109.0	-189.5	400.8	395.1	5.74	69.840		
1,700.0	1,682.0	1,634.7	1,621.3	4.8	4.4	162.03	115.1	-202.4	431.3	425.2	6.12	70.519		
1,800.0	1,780.5	1,730.0	1,715.5	5.2	4.7	162.08	121.2	-215.2	461.9	455.4	6.49	71.118		
1,900.0	1,878.9	1,825.2	1,809.6	5.5	5.0	162.12	127.3	-228.1	492.4	485.5	6.87	71.649		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-12D - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-52.70	35.3	-46.4	58.3					
100.0	100.0	100.0	100.0	0.1	0.1	-52.70	35.3	-46.4	58.3	58.0	0.27	214.018		
200.0	200.0	200.0	200.0	0.3	0.3	-52.70	35.3	-46.4	58.3	57.6	0.62	93.783	CC, ES	
300.0	300.0	297.8	297.7	0.5	0.5	-54.35	35.0	-48.8	60.1	59.2	0.97	61.763		
400.0	400.0	394.9	394.6	0.7	0.7	149.24	34.2	-56.2	67.3	66.0	1.33	50.552		
500.0	499.8	490.6	489.5	0.9	1.0	145.95	32.8	-68.3	82.9	81.2	1.71	48.510	SF	
600.0	599.1	583.8	581.2	1.1	1.3	143.69	31.0	-84.5	107.0	104.9	2.12	50.507		
700.0	697.7	675.6	670.7	1.4	1.7	142.42	28.7	-104.6	138.5	135.9	2.56	54.117		
800.0	796.1	769.9	762.5	1.7	2.1	141.87	26.3	-126.2	171.6	168.6	3.03	56.617		
900.0	894.5	864.2	854.3	2.1	2.5	141.49	23.9	-147.8	204.8	201.3	3.51	58.286		
1,000.0	993.0	958.6	946.1	2.4	2.9	141.22	21.4	-169.4	237.9	233.9	4.00	59.459		
1,100.0	1,091.4	1,052.9	1,037.9	2.7	3.3	141.02	19.0	-191.0	271.1	266.6	4.49	60.320		
1,200.0	1,189.8	1,147.2	1,129.7	3.1	3.7	140.86	16.5	-212.6	304.3	299.3	4.99	60.975		
1,300.0	1,288.3	1,241.6	1,221.5	3.4	4.2	140.73	14.1	-234.2	337.5	332.0	5.49	61.487		
1,400.0	1,386.7	1,335.9	1,313.3	3.8	4.6	140.63	11.7	-255.8	370.6	364.6	5.99	61.898		
1,500.0	1,485.1	1,430.2	1,405.1	4.1	5.0	140.54	9.2	-277.4	403.8	397.3	6.49	62.233		
1,600.0	1,583.6	1,524.6	1,496.9	4.5	5.4	140.47	6.8	-299.1	437.0	430.0	6.99	62.512		
1,700.0	1,682.0	1,618.9	1,588.7	4.8	5.8	140.40	4.3	-320.7	470.2	462.7	7.49	62.746		

Cathedral Energy Services

Anticollision Report

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Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-12DD - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-55.75	23.7	-34.8	42.1					
100.0	100.0	100.0	100.0	0.1	0.1	-55.75	23.7	-34.8	42.1	41.8	0.27	154.469		
200.0	200.0	200.0	200.0	0.3	0.3	-55.75	23.7	-34.8	42.1	41.4	0.62	67.689 CC, ES		
300.0	300.0	299.0	299.0	0.5	0.5	-57.27	23.2	-36.1	43.0	42.0	0.97	44.231		
400.0	400.0	397.2	396.9	0.7	0.7	145.06	21.2	-42.1	48.5	47.1	1.33	36.404		
500.0	499.8	494.2	493.3	0.9	0.9	140.68	17.7	-52.7	62.0	60.3	1.72	36.082 SF		
600.0	599.1	589.0	586.8	1.1	1.3	137.86	12.8	-67.6	83.4	81.2	2.15	38.842		
700.0	697.7	681.2	676.8	1.4	1.6	136.31	6.6	-86.2	112.0	109.4	2.63	42.640		
800.0	796.1	775.3	768.1	1.7	2.1	135.13	-0.6	-108.0	143.7	140.6	3.14	45.769		
900.0	894.5	870.1	860.0	2.1	2.5	134.36	-7.9	-129.9	175.5	171.9	3.67	47.850		
1,000.0	993.0	964.8	951.9	2.4	2.9	133.83	-15.2	-151.9	207.4	203.2	4.21	49.317		
1,100.0	1,091.4	1,059.6	1,043.9	2.7	3.3	133.43	-22.4	-173.9	239.2	234.5	4.75	50.398		
1,200.0	1,189.8	1,154.4	1,135.8	3.1	3.8	133.13	-29.7	-195.8	271.1	265.8	5.29	51.223		
1,300.0	1,288.3	1,249.2	1,227.7	3.4	4.2	132.90	-37.0	-217.8	302.9	297.1	5.84	51.872		
1,400.0	1,386.7	1,344.0	1,319.6	3.8	4.7	132.71	-44.3	-239.7	334.8	328.4	6.39	52.393		
1,500.0	1,485.1	1,438.8	1,411.5	4.1	5.1	132.55	-51.5	-261.7	366.7	359.7	6.94	52.822		
1,600.0	1,583.6	1,533.5	1,503.5	4.5	5.6	132.41	-58.8	-283.6	398.5	391.0	7.49	53.179		
1,700.0	1,682.0	1,628.3	1,595.4	4.8	6.0	132.30	-66.1	-305.6	430.4	422.4	8.05	53.481		
1,800.0	1,780.5	1,723.1	1,687.3	5.2	6.4	132.20	-73.4	-327.6	462.3	453.7	8.60	53.740		
1,900.0	1,878.9	1,817.9	1,779.2	5.5	6.9	132.12	-80.7	-349.5	494.1	485.0	9.16	53.964		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-13A - OH - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-44.84	23.3	-23.2	32.9				
100.0	100.0	100.0	100.0	0.1	0.1	-44.84	23.3	-23.2	32.9	32.6	0.27	120.718	
200.0	200.0	200.0	200.0	0.3	0.3	-44.84	23.3	-23.2	32.9	32.2	0.62	52.899	
255.7	255.7	255.7	255.7	0.4	0.4	-44.84	23.3	-23.2	32.9	32.1	0.82	40.298 CC	
300.0	300.0	299.9	299.9	0.5	0.5	-45.11	23.2	-23.3	32.9	31.9	0.97	33.929 ES	
400.0	400.0	399.2	399.1	0.7	0.7	157.05	21.5	-26.8	35.7	34.4	1.33	26.891	
500.0	499.8	497.6	497.1	0.9	0.9	149.70	17.4	-34.7	45.6	43.9	1.71	26.653 SF	
600.0	599.1	594.3	592.8	1.1	1.2	143.80	11.2	-46.9	63.2	61.1	2.15	29.453	
700.0	697.7	688.8	685.6	1.4	1.5	139.91	3.0	-62.9	87.9	85.3	2.64	33.256	
800.0	796.1	781.1	775.2	1.7	1.9	136.51	-7.0	-82.5	116.8	113.6	3.19	36.560	
900.0	894.5	875.5	866.1	2.1	2.4	133.58	-18.5	-105.0	147.8	144.1	3.76	39.265	
1,000.0	993.0	970.3	957.5	2.4	2.8	131.65	-30.1	-127.6	179.2	174.8	4.35	41.229	
1,100.0	1,091.4	1,065.1	1,048.9	2.7	3.3	130.29	-41.6	-150.2	210.6	205.7	4.93	42.711	
1,200.0	1,189.8	1,159.9	1,140.2	3.1	3.8	129.29	-53.2	-172.7	242.2	236.6	5.52	43.866	
1,300.0	1,288.3	1,254.8	1,231.6	3.4	4.3	128.52	-64.7	-195.3	273.7	267.6	6.11	44.788	
1,400.0	1,386.7	1,349.6	1,323.0	3.8	4.7	127.90	-76.3	-217.9	305.4	298.7	6.71	45.541	
1,500.0	1,485.1	1,444.4	1,414.3	4.1	5.2	127.40	-87.8	-240.5	337.0	329.7	7.30	46.166	
1,600.0	1,583.6	1,539.2	1,505.7	4.5	5.7	126.99	-99.4	-263.1	368.7	360.8	7.90	46.694	
1,700.0	1,682.0	1,634.0	1,597.1	4.8	6.2	126.64	-110.9	-285.7	400.4	391.9	8.49	47.144	
1,800.0	1,780.5	1,728.9	1,688.4	5.2	6.7	126.35	-122.5	-308.3	432.1	423.0	9.09	47.534	
1,900.0	1,878.9	1,823.7	1,779.8	5.5	7.1	126.09	-134.0	-330.9	463.8	454.1	9.69	47.873	
2,000.0	1,977.3	1,918.5	1,871.1	5.9	7.6	125.87	-145.6	-353.4	495.5	485.2	10.29	48.172	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-13AA - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-62.59	12.0	-23.2	26.1					
100.0	100.0	100.0	100.0	0.1	0.1	-62.59	12.0	-23.2	26.1	25.8	0.27	95.888		
200.0	200.0	200.0	200.0	0.3	0.3	-62.59	12.0	-23.2	26.1	25.5	0.62	42.018		
234.9	234.9	234.9	234.9	0.4	0.4	-62.59	12.0	-23.2	26.1	25.4	0.74	35.129 CC, ES		
300.0	300.0	299.7	299.7	0.5	0.5	-63.88	11.6	-23.7	26.4	25.4	0.97	27.179		
400.0	400.0	398.9	398.7	0.7	0.7	136.15	8.4	-27.7	30.0	28.7	1.33	22.527 SF		
500.0	499.8	497.2	496.5	0.9	0.9	129.98	2.0	-35.6	40.5	38.7	1.73	23.393		
600.0	599.1	594.1	592.2	1.1	1.2	126.52	-7.4	-47.2	57.6	55.4	2.19	26.295		
700.0	697.7	689.0	685.2	1.4	1.6	124.81	-19.6	-62.2	81.0	78.2	2.73	29.649		
800.0	796.1	782.0	775.1	1.7	2.0	122.68	-34.3	-80.4	108.2	104.9	3.32	32.547		
900.0	894.5	875.9	865.0	2.1	2.5	120.29	-51.3	-101.5	138.2	134.2	3.94	35.100		
1,000.0	993.0	971.1	956.1	2.4	3.0	118.65	-68.7	-123.1	168.5	164.0	4.56	36.935		
1,100.0	1,091.4	1,066.3	1,047.2	2.7	3.5	117.52	-86.2	-144.6	198.9	193.8	5.19	38.306		
1,200.0	1,189.8	1,161.5	1,138.2	3.1	4.0	116.69	-103.6	-166.2	229.4	223.6	5.83	39.363		
1,300.0	1,288.3	1,256.7	1,229.3	3.4	4.6	116.05	-121.0	-187.8	260.0	253.5	6.47	40.202		
1,400.0	1,386.7	1,351.9	1,320.4	3.8	5.1	115.54	-138.5	-209.3	290.5	283.4	7.11	40.882		
1,500.0	1,485.1	1,447.1	1,411.4	4.1	5.6	115.14	-155.9	-230.9	321.1	313.3	7.75	41.445		
1,600.0	1,583.6	1,542.2	1,502.5	4.5	6.1	114.80	-173.3	-252.5	351.6	343.2	8.39	41.917		
1,700.0	1,682.0	1,637.4	1,593.6	4.8	6.6	114.52	-190.8	-274.0	382.2	373.2	9.03	42.320		
1,800.0	1,780.5	1,732.6	1,684.6	5.2	7.1	114.28	-208.2	-295.6	412.8	403.1	9.67	42.666		
1,900.0	1,878.9	1,827.8	1,775.7	5.5	7.7	114.07	-225.6	-317.2	443.4	433.1	10.32	42.968		
2,000.0	1,977.3	1,923.0	1,866.8	5.9	8.2	113.89	-243.1	-338.7	474.0	463.0	10.96	43.233		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-13D - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	-44.85	11.7	-11.6	16.4					
100.0	100.0	100.0	100.0	0.1	0.1	-44.85	11.7	-11.6	16.4	16.2	0.27	60.353		
200.0	200.0	200.0	200.0	0.3	0.3	-44.85	11.7	-11.6	16.4	15.8	0.62	26.447		
300.0	300.0	300.0	300.0	0.5	0.5	-44.85	11.7	-11.6	16.4	15.5	0.97	16.934 CC, ES		
400.0	400.0	399.9	399.9	0.7	0.7	155.56	9.8	-13.4	17.9	16.6	1.33	13.508 SF		
500.0	499.8	499.3	499.0	0.9	0.9	143.79	4.1	-18.8	25.1	23.4	1.71	14.663		
600.0	599.1	597.7	596.5	1.1	1.1	135.47	-5.1	-27.6	38.8	36.6	2.17	17.893		
700.0	697.7	694.5	691.7	1.4	1.5	130.65	-17.7	-39.6	58.5	55.8	2.71	21.580		
800.0	796.1	789.8	784.4	1.7	1.9	126.04	-33.5	-54.7	81.7	78.4	3.32	24.578		
900.0	894.5	883.2	874.1	2.1	2.4	121.44	-52.2	-72.6	108.1	104.1	3.98	27.159		
1,000.0	993.0	975.3	961.4	2.4	2.9	117.23	-73.7	-93.1	137.9	133.3	4.65	29.697		
1,100.0	1,091.4	1,070.0	1,050.5	2.7	3.5	114.10	-96.7	-115.1	169.2	163.9	5.32	31.823		
1,200.0	1,189.8	1,164.6	1,139.7	3.1	4.0	111.94	-119.6	-137.0	200.8	194.8	5.99	33.541		
1,300.0	1,288.3	1,259.3	1,228.9	3.4	4.6	110.37	-142.6	-158.9	232.6	225.9	6.66	34.945		
1,400.0	1,386.7	1,353.9	1,318.0	3.8	5.2	109.17	-165.5	-180.9	264.5	257.2	7.33	36.110		
1,500.0	1,485.1	1,448.6	1,407.2	4.1	5.8	108.23	-188.5	-202.8	296.5	288.5	7.99	37.090		
1,600.0	1,583.6	1,543.2	1,496.4	4.5	6.4	107.48	-211.5	-224.7	328.5	319.9	8.66	37.925		
1,700.0	1,682.0	1,637.9	1,585.5	4.8	7.0	106.86	-234.4	-246.7	360.6	351.3	9.33	38.645		
1,800.0	1,780.5	1,732.5	1,674.7	5.2	7.5	106.34	-257.4	-268.6	392.7	382.7	10.00	39.270		
1,900.0	1,878.9	1,827.1	1,763.8	5.5	8.1	105.90	-280.3	-290.5	424.9	414.2	10.67	39.819		
2,000.0	1,977.3	1,921.8	1,853.0	5.9	8.7	105.52	-303.3	-312.5	457.0	445.7	11.34	40.304		
2,100.0	2,075.8	2,016.4	1,942.2	6.2	9.3	105.19	-326.2	-334.4	489.2	477.2	12.01	40.736		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-15AA - OH - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-11.7	0.0	11.7					
100.0	100.0	100.0	100.0	0.1	0.1	180.00	-11.7	0.0	11.7	11.4	0.27	42.824		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-11.7	0.0	11.7	11.0	0.62	18.766	CC, ES	
300.0	300.0	299.3	299.3	0.5	0.5	176.28	-14.1	0.9	14.1	13.1	0.97	14.508		
400.0	400.0	398.3	397.9	0.7	0.7	18.88	-21.3	3.6	20.3	19.0	1.32	15.384		
500.0	499.8	496.9	495.7	0.9	1.0	17.48	-33.2	8.2	26.8	25.1	1.67	16.029		
600.0	599.1	595.1	592.3	1.1	1.3	17.62	-49.7	14.4	33.3	31.3	2.03	16.424		
700.0	697.7	694.4	689.2	1.4	1.7	18.77	-70.1	22.2	39.2	36.7	2.41	16.264		
800.0	796.1	794.3	786.5	1.7	2.1	20.02	-90.8	30.0	44.3	41.5	2.81	15.780		
900.0	894.5	894.1	883.9	2.1	2.6	21.01	-111.6	37.9	49.4	46.2	3.22	15.371		
1,000.0	893.0	894.0	881.3	2.4	3.0	21.81	-132.3	45.8	54.6	51.0	3.64	15.023		
1,100.0	1,091.4	1,093.8	1,078.6	2.7	3.4	22.47	-153.1	53.6	59.8	55.7	4.06	14.724		
1,200.0	1,189.8	1,193.7	1,176.0	3.1	3.8	23.03	-173.8	61.5	65.0	60.5	4.49	14.465		
1,300.0	1,288.3	1,293.6	1,273.4	3.4	4.2	23.50	-194.5	69.4	70.1	65.2	4.93	14.240		
1,400.0	1,386.7	1,393.4	1,370.7	3.8	4.7	23.91	-215.3	77.2	75.3	70.0	5.36	14.043		
1,500.0	1,485.1	1,493.3	1,468.1	4.1	5.1	24.27	-236.0	85.1	80.5	74.7	5.81	13.869		
1,600.0	1,583.6	1,593.2	1,565.5	4.5	5.5	24.59	-256.8	93.0	85.7	79.5	6.25	13.715		
1,700.0	1,682.0	1,693.0	1,662.9	4.8	5.9	24.86	-277.5	100.8	90.9	84.2	6.70	13.578		
1,800.0	1,780.5	1,792.9	1,760.2	5.2	6.4	25.11	-298.2	108.7	96.1	89.0	7.14	13.454		
1,900.0	1,878.9	1,892.8	1,857.6	5.5	6.8	25.33	-319.0	116.5	101.3	93.7	7.59	13.343		
2,000.0	1,977.3	1,992.6	1,955.0	5.9	7.2	25.53	-339.7	124.4	106.5	98.5	8.04	13.242		
2,100.0	2,075.8	2,092.5	2,052.3	6.2	7.6	25.72	-360.5	132.3	111.7	103.2	8.50	13.151		
2,200.0	2,174.2	2,192.4	2,149.7	6.6	8.0	25.88	-381.2	140.1	116.9	108.0	8.95	13.067		
2,300.0	2,272.6	2,292.2	2,247.1	7.0	8.5	26.03	-401.9	148.0	122.2	112.7	9.40	12.990		
2,400.0	2,371.1	2,392.1	2,344.4	7.3	8.9	26.17	-422.7	155.9	127.4	117.5	9.86	12.920		
2,500.0	2,469.5	2,491.9	2,441.8	7.7	9.3	26.30	-443.4	163.7	132.6	122.3	10.31	12.855		
2,600.0	2,567.9	2,591.8	2,539.2	8.0	9.7	26.42	-464.2	171.6	137.8	127.0	10.77	12.795		
2,700.0	2,666.4	2,691.7	2,636.5	8.4	10.2	26.53	-484.9	179.5	143.0	131.8	11.22	12.739		
2,800.0	2,764.8	2,791.5	2,733.9	8.7	10.6	26.63	-505.6	187.3	148.2	136.5	11.68	12.687		
2,900.0	2,863.3	2,891.4	2,831.3	9.1	11.0	26.73	-526.4	195.2	153.4	141.3	12.14	12.638		
3,000.0	2,961.7	2,991.3	2,928.7	9.4	11.4	26.82	-547.1	203.1	158.6	146.0	12.60	12.593		
3,100.0	3,060.1	3,091.1	3,026.0	9.8	11.9	26.90	-567.9	210.9	163.8	150.8	13.05	12.551		
3,200.0	3,158.6	3,191.0	3,123.4	10.1	12.3	26.98	-588.6	218.8	169.0	155.5	13.51	12.511		
3,300.0	3,257.0	3,290.9	3,220.8	10.5	12.7	27.05	-609.3	226.7	174.2	160.3	13.97	12.473		
3,400.0	3,355.4	3,390.7	3,318.1	10.8	13.2	27.12	-630.1	234.5	179.5	165.0	14.43	12.438		
3,500.0	3,453.9	3,490.6	3,415.5	11.2	13.6	27.19	-650.8	242.4	184.7	169.8	14.89	12.405		
3,600.0	3,552.3	3,590.4	3,512.9	11.5	14.0	27.25	-671.6	250.3	189.9	174.5	15.35	12.374		
3,700.0	3,650.7	3,690.3	3,610.2	11.9	14.4	27.31	-692.3	258.1	195.1	179.3	15.81	12.344		
3,800.0	3,749.2	3,790.2	3,707.6	12.3	14.9	27.36	-713.0	266.0	200.3	184.0	16.26	12.316		
3,900.0	3,847.6	3,890.0	3,805.0	12.6	15.3	27.42	-733.8	273.9	205.5	188.8	16.72	12.289		
4,000.0	3,946.1	3,989.9	3,902.3	13.0	15.7	27.47	-754.5	281.7	210.7	193.6	17.18	12.263		
4,100.0	4,044.5	4,089.8	3,999.7	13.3	16.1	27.51	-775.3	289.6	215.9	198.3	17.64	12.239		
4,200.0	4,142.9	4,189.6	4,097.1	13.7	16.6	27.56	-796.0	297.4	221.2	203.1	18.10	12.216		
4,300.0	4,241.4	4,289.5	4,194.5	14.0	17.0	27.60	-816.7	305.3	226.4	207.8	18.56	12.194		
4,400.0	4,339.8	4,389.4	4,291.8	14.4	17.4	27.64	-837.5	313.2	231.6	212.6	19.02	12.173		
4,500.0	4,438.2	4,489.2	4,389.2	14.7	17.8	27.68	-858.2	321.0	236.8	217.3	19.49	12.153		
4,600.0	4,536.7	4,589.1	4,486.6	15.1	18.3	27.72	-879.0	328.9	242.0	222.1	19.95	12.134		
4,700.0	4,635.1	4,688.9	4,583.9	15.4	18.7	27.76	-899.7	336.8	247.2	226.8	20.41	12.115		
4,800.0	4,733.5	4,788.8	4,681.3	15.8	19.1	27.79	-920.4	344.6	252.4	231.6	20.87	12.098		
4,900.0	4,832.0	4,888.7	4,778.7	16.2	19.5	27.82	-941.2	352.5	257.7	236.3	21.33	12.081		
5,000.0	4,930.4	4,988.5	4,876.0	16.5	20.0	27.86	-961.9	360.4	262.9	241.1	21.79	12.065		
5,100.0	5,028.9	5,088.4	4,973.4	16.9	20.4	27.89	-982.7	368.2	268.1	245.8	22.25	12.049		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-15AA - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
5,200.0	5,127.3	5,188.3	5,070.8	17.2	20.8	27.92	-1,003.4	376.1	273.3	250.6	22.71	12.034		
5,300.0	5,225.7	5,288.1	5,168.1	17.6	21.2	27.95	-1,024.1	384.0	278.5	255.3	23.17	12.020		
5,400.0	5,324.2	5,388.0	5,265.5	17.9	21.7	27.97	-1,044.9	391.8	283.7	260.1	23.63	12.006		
5,500.0	5,422.6	5,487.9	5,362.9	18.3	22.1	28.00	-1,065.6	399.7	288.9	264.9	24.09	11.992		
5,600.0	5,521.0	5,587.7	5,460.3	18.6	22.5	28.02	-1,086.4	407.6	294.2	269.6	24.56	11.979		
5,700.0	5,619.5	5,687.6	5,557.6	19.0	22.9	28.05	-1,107.1	415.4	299.4	274.4	25.02	11.967		
5,800.0	5,717.9	5,787.5	5,655.0	19.3	23.4	28.07	-1,127.9	423.3	304.6	279.1	25.48	11.955		
5,900.0	5,816.3	5,887.3	5,752.4	19.7	23.8	28.10	-1,148.6	431.2	309.8	283.9	25.94	11.943		
6,000.0	5,914.8	5,987.2	5,849.7	20.0	24.2	28.12	-1,169.3	439.0	315.0	288.6	26.40	11.932		
6,100.0	6,013.2	6,087.0	5,947.1	20.4	24.6	28.14	-1,190.1	446.9	320.2	293.4	26.86	11.921		
6,200.0	6,111.7	6,193.5	6,051.1	20.8	25.1	28.21	-1,211.6	455.0	324.9	297.5	27.35	11.878		
6,300.0	6,210.3	6,305.3	6,161.0	21.1	25.4	28.41	-1,230.5	462.2	327.6	299.8	27.85	11.762		
6,400.0	6,309.5	6,417.2	6,271.7	21.3	25.7	28.57	-1,245.5	467.9	329.8	301.5	28.29	11.656		
6,500.0	6,409.1	6,529.2	6,383.1	21.5	26.0	28.68	-1,256.4	472.0	331.4	302.7	28.67	11.559		
6,600.0	6,508.9	6,641.2	6,494.8	21.7	26.2	28.74	-1,263.2	474.6	332.5	303.5	28.98	11.471		
6,700.0	6,608.9	6,753.2	6,606.9	21.8	26.3	28.76	-1,266.0	475.7	333.0	303.7	29.24	11.388		
6,800.0	6,708.9	6,855.3	6,708.9	21.9	26.3	-178.64	-1,266.1	475.7	333.0	303.5	29.51	11.283		
6,900.0	6,808.9	6,955.3	6,808.9	22.0	26.4	-178.64	-1,266.1	475.7	333.0	303.2	29.80	11.176		
7,000.0	6,908.9	7,055.3	6,908.9	22.1	26.5	-178.64	-1,266.1	475.7	333.0	302.9	30.08	11.071		
7,100.0	7,008.9	7,155.3	7,008.9	22.2	26.6	-178.64	-1,266.1	475.7	333.0	302.6	30.36	10.967		
7,200.0	7,108.9	7,255.3	7,108.9	22.2	26.7	-178.64	-1,266.1	475.7	333.0	302.4	30.65	10.865		
7,300.0	7,208.9	7,355.3	7,208.9	22.3	26.7	-178.64	-1,266.1	475.7	333.0	302.1	30.94	10.764		
7,400.0	7,308.9	7,455.3	7,308.9	22.4	26.8	-178.64	-1,266.1	475.7	333.0	301.8	31.22	10.665		
7,500.0	7,408.9	7,555.3	7,408.9	22.5	26.9	-178.64	-1,266.1	475.7	333.0	301.5	31.51	10.567		
7,600.0	7,508.9	7,655.3	7,508.9	22.6	27.0	-178.64	-1,266.1	475.7	333.0	301.2	31.81	10.470		
7,700.0	7,608.9	7,755.3	7,608.9	22.8	27.1	-178.64	-1,266.1	475.7	333.0	300.9	32.10	10.375		
7,800.0	7,708.9	7,855.3	7,708.9	22.9	27.2	-178.64	-1,266.1	475.7	333.0	300.6	32.39	10.281		
7,900.0	7,808.9	7,955.3	7,808.9	23.0	27.3	-178.64	-1,266.1	475.7	333.0	300.3	32.68	10.188		
8,000.0	7,908.9	8,055.3	7,908.9	23.1	27.4	-178.64	-1,266.1	475.7	333.0	300.0	32.98	10.097		
8,100.0	8,008.9	8,155.3	8,008.9	23.2	27.4	-178.64	-1,266.1	475.7	333.0	299.7	33.28	10.007		
8,200.0	8,108.9	8,255.3	8,108.9	23.3	27.5	-178.64	-1,266.1	475.7	333.0	299.4	33.57	9.919		
8,300.0	8,208.9	8,355.3	8,208.9	23.4	27.6	-178.64	-1,266.1	475.7	333.0	299.1	33.87	9.831		
8,400.0	8,308.9	8,455.3	8,308.9	23.5	27.7	-178.64	-1,266.1	475.7	333.0	298.8	34.17	9.745		
8,500.0	8,408.9	8,555.3	8,408.9	23.6	27.8	-178.64	-1,266.1	475.7	333.0	298.5	34.47	9.660		
8,600.0	8,508.9	8,655.3	8,508.9	23.7	27.9	-178.64	-1,266.1	475.7	333.0	298.2	34.77	9.577		
8,700.0	8,608.9	8,755.3	8,608.9	23.8	28.0	-178.64	-1,266.1	475.7	333.0	297.9	35.07	9.494		
8,763.4	8,672.3	8,818.7	8,672.3	23.9	28.1	-178.64	-1,266.1	475.7	333.0	297.7	35.27	9.442		
8,800.0	8,708.9	8,846.4	8,700.0	23.9	28.1	-178.64	-1,266.1	475.7	333.1	297.8	35.36	9.420 SF		
8,900.0	8,808.9	8,846.4	8,700.0	24.0	28.1	-178.64	-1,266.1	475.7	350.4	314.8	35.52	9.865		
9,000.0	8,908.9	8,846.4	8,700.0	24.2	28.1	-178.64	-1,266.1	475.7	393.1	357.4	35.67	11.022		
9,100.0	9,008.9	8,846.4	8,700.0	24.3	28.1	-178.64	-1,266.1	475.7	454.2	418.4	35.82	12.681		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design J6SEB Pad - HMU 6-15D - OH - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
0.0	0.0	0.0	0.0	0.0	0.0	-88.20	0.4	-11.6	11.6							
100.0	100.0	100.0	100.0	0.1	0.1	-88.20	0.4	-11.6	11.6	11.3	0.27	42.582				
200.0	200.0	200.0	200.0	0.3	0.3	-88.20	0.4	-11.6	11.6	11.0	0.62	18.659				
260.4	260.4	260.4	260.4	0.4	0.4	-89.82	0.0	-11.6	11.6	10.8	0.83	13.907 CC				
300.0	300.0	300.0	300.0	0.5	0.5	-95.46	-1.1	-11.6	11.6	10.7	0.97	11.968 ES				
400.0	400.0	399.6	399.4	0.7	0.7	90.08	-7.6	-11.6	13.8	12.5	1.35	10.249 SF				
500.0	499.8	499.3	498.3	0.9	0.9	77.61	-19.1	-10.9	19.0	17.2	1.76	10.750				
600.0	599.1	598.8	596.5	1.1	1.3	70.67	-35.2	-7.9	24.6	22.3	2.27	10.852				
700.0	697.7	698.1	693.5	1.4	1.7	65.76	-55.6	-2.4	30.5	27.6	2.85	10.694				
800.0	796.1	796.8	788.7	1.7	2.1	57.06	-80.4	5.4	38.5	35.2	3.39	11.354				
900.0	894.5	896.0	883.8	2.1	2.6	48.93	-107.5	14.5	48.8	45.0	3.84	12.717				
1,000.0	993.0	995.3	978.9	2.4	3.2	43.68	-134.6	23.5	59.8	55.5	4.27	14.006				
1,100.0	1,091.4	1,094.6	1,073.9	2.7	3.7	40.07	-161.7	32.6	71.0	66.4	4.69	15.157				
1,200.0	1,189.8	1,193.9	1,169.0	3.1	4.2	37.46	-188.8	41.7	82.5	77.4	5.10	16.167				
1,300.0	1,288.3	1,293.2	1,264.1	3.4	4.7	35.48	-215.9	50.8	94.1	88.6	5.52	17.052				
1,400.0	1,386.7	1,392.4	1,359.2	3.8	5.2	33.95	-243.0	59.8	105.8	99.9	5.93	17.829				
1,500.0	1,485.1	1,491.7	1,454.2	4.1	5.8	32.71	-270.1	68.9	117.5	111.2	6.35	18.514				
1,600.0	1,583.6	1,591.0	1,549.3	4.5	6.3	31.71	-297.2	78.0	129.3	122.6	6.76	19.121				
1,700.0	1,682.0	1,690.3	1,644.4	4.8	6.8	30.87	-324.3	87.1	141.2	134.0	7.18	19.663				
1,800.0	1,780.5	1,789.6	1,739.5	5.2	7.3	30.16	-351.4	96.2	153.0	145.4	7.59	20.148				
1,900.0	1,878.9	1,888.8	1,834.5	5.5	7.9	29.55	-378.5	105.2	164.9	156.9	8.01	20.585				
2,000.0	1,977.3	1,988.1	1,929.6	5.9	8.4	29.02	-405.6	114.3	176.8	168.3	8.43	20.981				
2,100.0	2,075.8	2,087.4	2,024.7	6.2	8.9	28.56	-432.7	123.4	188.7	179.8	8.84	21.341				
2,200.0	2,174.2	2,186.7	2,119.8	6.6	9.5	28.16	-459.8	132.5	200.6	191.3	9.26	21.669				
2,300.0	2,272.6	2,285.9	2,214.8	7.0	10.0	27.80	-486.9	141.5	212.5	202.8	9.67	21.970				
2,400.0	2,371.1	2,385.2	2,309.9	7.3	10.5	27.48	-514.0	150.6	224.4	214.3	10.09	22.246				
2,500.0	2,469.5	2,484.5	2,405.0	7.7	11.0	27.19	-541.1	159.7	236.3	225.8	10.50	22.501				
2,600.0	2,567.9	2,583.8	2,500.1	8.0	11.6	26.93	-568.2	168.8	248.3	237.4	10.92	22.738				
2,700.0	2,666.4	2,683.1	2,595.1	8.4	12.1	26.69	-595.3	177.8	260.2	248.9	11.34	22.957				
2,800.0	2,764.8	2,782.3	2,690.2	8.7	12.6	26.47	-622.5	186.9	272.2	260.4	11.75	23.160				
2,900.0	2,863.3	2,881.6	2,785.3	9.1	13.2	26.27	-649.6	196.0	284.1	272.0	12.17	23.350				
3,000.0	2,961.7	2,980.9	2,880.4	9.4	13.7	26.09	-676.7	205.1	296.1	283.5	12.58	23.528				
3,100.0	3,060.1	3,080.2	2,975.4	9.8	14.2	25.92	-703.8	214.1	308.0	295.0	13.00	23.694				
3,200.0	3,158.6	3,179.5	3,070.5	10.1	14.7	25.77	-730.9	223.2	320.0	306.6	13.42	23.851				
3,300.0	3,257.0	3,278.7	3,165.6	10.5	15.3	25.62	-758.0	232.3	331.9	318.1	13.83	23.998				
3,400.0	3,355.4	3,378.0	3,260.7	10.8	15.8	25.49	-785.1	241.4	343.9	329.7	14.25	24.136				
3,500.0	3,453.9	3,477.3	3,355.7	11.2	16.3	25.36	-812.2	250.5	355.9	341.2	14.66	24.267				
3,600.0	3,552.3	3,576.6	3,450.8	11.5	16.9	25.25	-839.3	259.5	367.8	352.7	15.08	24.390				
3,700.0	3,650.7	3,675.9	3,545.9	11.9	17.4	25.14	-866.4	268.6	379.8	364.3	15.50	24.507				
3,800.0	3,749.2	3,775.1	3,641.0	12.3	17.9	25.03	-893.5	277.7	391.8	375.8	15.91	24.618				
3,900.0	3,847.6	3,874.4	3,736.0	12.6	18.5	24.94	-920.6	286.8	403.7	387.4	16.33	24.723				
4,000.0	3,946.1	3,973.7	3,831.1	13.0	19.0	24.85	-947.7	295.8	415.7	398.9	16.75	24.823				
4,100.0	4,044.5	4,073.0	3,926.2	13.3	19.5	24.76	-974.8	304.9	427.7	410.5	17.16	24.919				
4,200.0	4,142.9	4,172.2	4,021.3	13.7	20.0	24.68	-1,001.9	314.0	439.6	422.1	17.58	25.009				
4,300.0	4,241.4	4,271.5	4,116.3	14.0	20.6	24.60	-1,029.0	323.1	451.6	433.6	18.00	25.096				
4,400.0	4,339.8	4,370.8	4,211.4	14.4	21.1	24.53	-1,056.1	332.1	463.6	445.2	18.41	25.179				
4,500.0	4,438.2	4,470.1	4,306.5	14.7	21.6	24.46	-1,083.2	341.2	475.6	456.7	18.83	25.258				
4,600.0	4,536.7	4,569.4	4,401.6	15.1	22.2	24.39	-1,110.3	350.3	487.5	468.3	19.24	25.333				
4,700.0	4,635.1	4,668.6	4,496.6	15.4	22.7	24.33	-1,137.4	359.4	499.5	479.8	19.66	25.406				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

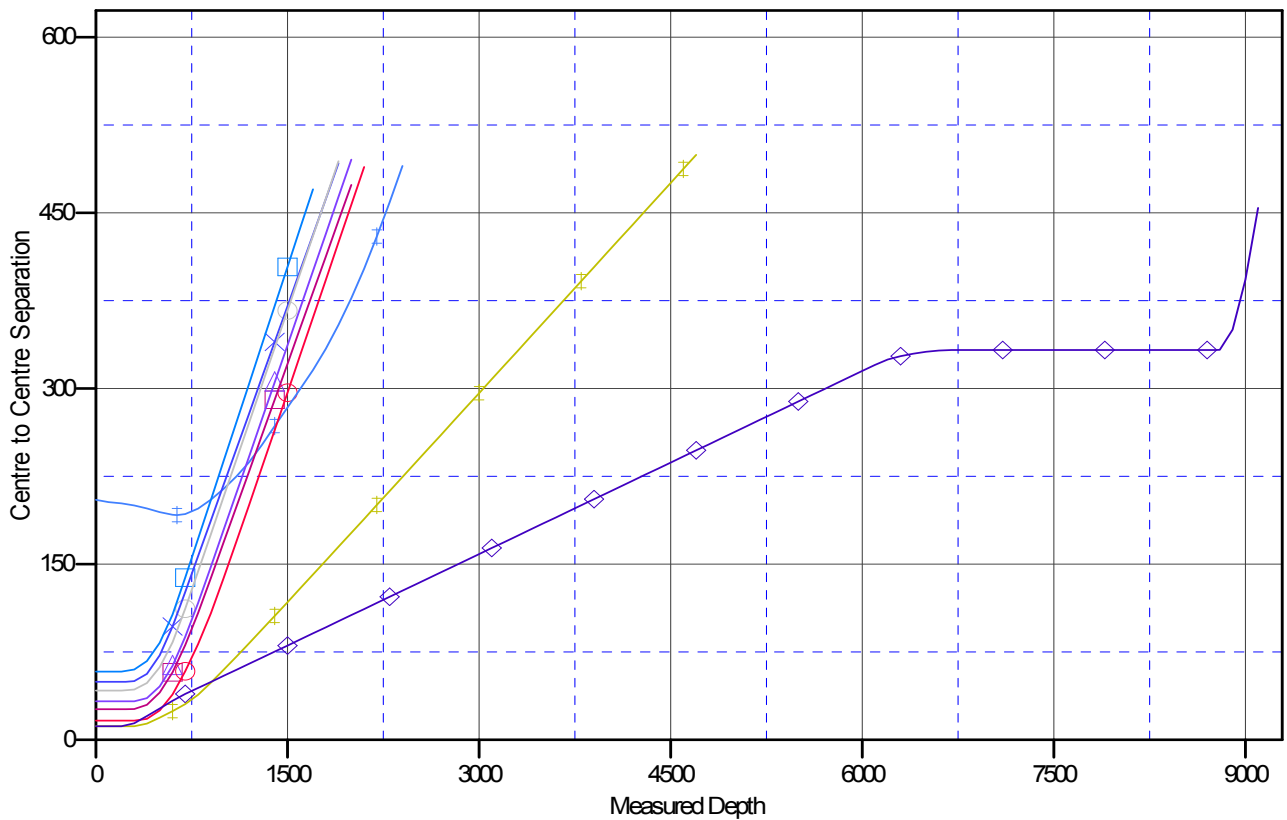
Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well HMU 6-15A
Project:	Mamm Creek	TVD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Reference Site:	J6SEB Pad	MD Reference:	KB=22 @ 7166.0ft (Patterson #308)
Site Error:	0.0ft	North Reference:	True
Reference Well:	HMU 6-15A	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	OH	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB=22 @ 7166.0ft (Patterson #308)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: HMU 6-15A
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.39°

Ladder Plot



LEGEND

- 6-11 (existing), Existing, Existing V0
- HMU6-13AA, OH, Plan #1 V0
- HMU6-11A, OH, Plan #1 V0
- HMU6-13A, OH, Plan #1 V0
- HMU6-15D, OH, Plan #1 V0
- HMU6-12DD, OH, Plan #1 V0
- HMU6-12D, OH, Plan #1 V0
- HMU6-13D, OH, Plan #1 V0
- HMU6-15AA, OH, Plan #1 V0